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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, DONGHAI D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 08/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/595,951

Applicant(s)

HONGY ET AL.

Examiner

Donghai D. Nguyen

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12, drawn to a power adapter, classified in class 425, subclass 549.
 - II. Claims 13-42, drawn to a method of terminating a thick film heater, classified in class 29, subclass 611.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make other and materially different product such as a thick film heater.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation between examiner, Tim Heitbrink, with Mr. Mathew Rosenberg on July 18, 2001 a provisional election was made with traverse to prosecute the invention of Group II, claims 13-42. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 3729

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "52" in Figures 6 and 7 (page 8, second paragraph). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "the final step of firing" (claim 30, line 1) lacks antecedent basics.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3729

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 13-17, 22, 25-29, 32-36, 38, 39, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,183,136 to Colla.

Regarding claim 13, Colla discloses a method of terminating a thick film heater comprising the step of: providing a heater (10) and a plurality of termination plates (7), the heater having thick film resistive heating element (6), the heating element having two end portions (Figure 2) adapted to contact the termination plates; applying a conductive noble-metal-based bonding agent to a contact surface between the termination plates and the end portions of the heating element (col. 6, lines 20-24); affixing a termination plate to each end portion of the heating element (col. 3, line 38), the bonding agent being disposed there between.

Regarding claim 14, Colla discloses the noble-metal-based bonding agent is silver-based (col. 2, line 23).

In regard to claim 15 Colla discloses a step of attaching a power conductor to each termination plate (Figure 1).

Regarding claim 17, Colla discloses that the power conductors are attached by soldering (col. 6, line 48).

Regarding claims 16 and 40, Colla does not disclose that the power conductors are attached by welding or brazing. It would have been an obvious matter of design choice to a person of ordinary skill in the art to attach power conductors by welding or brazing because Applicants have not disclosed that welding or brazing provides an advantage, is used for a particular purpose, or solve a stated problem.

Art Unit: 3729

One of ordinary skill in the art, furthermore, would have expected Applicants' invention to perform equally as well with either soldering as taught by Colla or welding or brazing in claims 16 and 40 because soldering can be used alternatively to welding or brazing. Therefore, it would have been an obvious matter of design choice to modify Colla to obtain the invention as specified in claims 16 and 40.

Regarding to claim 22, Colla discloses the bonding agent comprises a silver-palladium alloy (col. 6, line 20).

In regard to claims 25-29, Colla discloses the bonding agent is applied by silk screen printing (col. 6, line 23), but he does not disclose the bonding agent is applied with paint rush, or by spray coating, dipping the ends of the heating element in the bonding agent, or using a green tape method. It would have been an obvious matter of engineer design choice because Applicants have not disclose that using green tape method, or with a paint rush, or by spray coating, or by dipping the ends of the heating element in the bonding agent provides an advantage, is used for a particular purpose, or solves a stated problem (see page 14 of the specification, second paragraph). One of ordinary skill in the art, furthermore, notices using green tape method, or with a paint rush, spray coating, or dipping can be used alternatively to silk screen method in Colla's invention. Therefore, it would have been an obvious matter of design choice to modified Colla to obtain the invention as specified in claims 26-29.

Regarding claim 30, Colla discloses a step of firing the bonding agent between the termination plates and heating element at high temperature (col. 4, line 9), and he discloses that the heater baking until the bonding agent has sintered (col. 6, line 39).

Art Unit: 3729

In regard to claim 31, Colla discloses the baking takes place between 700°C and 900°C (see Example 1).

Regarding claim 32, Colla discloses the termination plate is curved to match the curvature of a substrate of the heater (see Figure 1).

In regard to claim 33, Colla discloses a final step of shielding the terminal plate and a portion of the power conductor with a protective layer (9).

Regarding claims 34-36, Colla discloses the protective layer comprises a polymer (col. 7, line 34), but Colla does not disclose the protective layer comprise a ceramic or glass insulation. It would have been an obvious matter of design choice to a person of ordinary skill in the art to use the protective layer comprise a ceramic or glass insulation because Applicants have not disclosed that a ceramic or glass insulation provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicants' invention to perform equally as well with either the protective layer taught by Colla or the claimed protective layer because they can be used alternatively (see page 13 of the specification, third paragraph).

Regarding claims 38 and 39, Colla discloses the bonding agent is applied directly to the end of portion of the heating element (col. 6, line 23), except for applying the bonding agent directly to the terminal plate, it would have been an obvious matter of engineering choice to a person of ordinary skill in the art to apply bonding agent directly on the terminal plate or both since both operations are well known and can be used alternatively (see page 11 of the specification third paragraph).

Art Unit: 3729

11. Claims 18, 19, and 37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Colla in view of US 4,803,345 to Hoshizaki et al.

Regarding to claims 18, 19, and 37, Colla does not disclose the termination plates are threaded studs or "L" shaped or three end portion; However, Hoshizaki et al. teach that termination plates can be threaded studs, "L" shaped (see Figures 1B and 11) for reducing stresses and preventing crack in the body of heating element (col. 1, lines 67-68), or three end portions (131-133). So it would have been obvious to one ordinary skill in the art at the time the invention was made to modify Colla's termination plates such that they have any appropriate shape such as threaded studs or "L" shaped disclosed by Hoshizaki et al. to reduce stresses between termination plates and heating element that prevent crack in the body of heating element and three end portions for use with 3-phase power.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colla in view of US 5,492,653 to Hochheimer et al.

Colla discloses a bonding agent consists is silver-base as in claim 14, but he does not disclose of an ink comprised primarily of a silver alloy; however, Hochheimer et al. teach that the bonding agent of an ink comprised primarily of silver in the bonding an ink (see Tables 1, 2, etc.), which provides good permanent bonding. It would have been obvious to one ordinary skill in the art at the time the invention was made to use Hochheimer et al. bonding agent to modify Colla's bonding agent comprised primary silver for strong bonding between termination plates and ends of heating element.

13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colla in view of Hochheimer et al. to claims 20 above, and further in view of US 5781402 Fujiyama et al.

Art Unit: 3729

Colla, as modified by Hochheimer et al., lacks a glass frit as instant claimed invention; However, Fujiyama et al. teach the use of glass frit for improving strength of the bonding (col. 2, line 7). It would have been obvious to one ordinary skill in the art at the time the invention was made to provide the bonding agent of Colla, as modified by Hochheimer et al., with adding a glass frit to the bonding agent, as taught by Fujiyama et al. to improve the strength of the bonding agent.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colla in view of US. 4,306,217 to Solow.

Colla does not disclose the heating element is protected by a dielectric except for a portion at each end, and wherein the termination plates are position to cover the unprotected portion of the heating element. However, Solow discloses the heating element is protected by a dielectric (col. 3, lines 60-63). It would have been obvious to one ordinary skill in the art at the time the invention was made to cover Colla's heating element with a dielectric as taught by Solow for strain relieve and encapsulate the heating element.

15. Claims 24 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colla in view of US .5,429,657 to Glicksman et al.

Colla does not disclose the bonding agent has a melting point of at least 900°C and consists of an ink comprised primary of a silver; However, Glicksman et al. teach that the greater the percentage of palladium, the greater the melting point of silver-palladium alloy (col. 4, lines 46-48 and see Table 1). It would have been obvious to one having ordinary skill in the art the time the invention was made to substitute the bonding agent taught by Glicksman et al. for the

Art Unit: 3729

unspecified bonding agent use in Colla's invention for having high melting point of the bonding agent, which consists primary of silver as the applicants' desired.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (703) 305-7859. The examiner can normally be reached on Monday-Friday (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7307 for regular communications and (703) 305-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

Donghai Nguyen

DN
August 21, 2002

A large, stylized handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the bottom.

PETER VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700